

# UNDERSTANDING 100-YEAR RAINFALL AND 100-YEAR FLOOD EVENTS

## DID ALL OF ESTES PARK EXPERIENCE A “100-YEAR FLOOD EVENT” IN 2013?

**No.** Each waterway experienced events of varying magnitude. For instance, while the flooding event on the Fall River in Estes Park (see the image below) was roughly a 2-percent-annual-chance flood (also referred to as a “50-year flood event”), the Fish Creek event was measured as a greater than 100-year flood. Media reports during the 2013 floods referred to the “1,000-year” rainfall event, but a rainfall event and flood event are not the same, and not all reporting at the time was accurate.

A 1,000-year rainfall event (0.1% annual probability) occurred near Lyons, resulting in the disaster seen there in 2013. Overall, the rainfall event contributed to major flooding in Boulder, Larimer and Weld Counties, including Estes Park, but as you will read, a 100 or 1,000-year rainfall event does not always cause a flooding event of the same scale. The distinction between the two events is crucial to understanding flood risk in Estes Park.

## WHAT IS A 100-YEAR FLOOD EVENT?

The 1-percent-annual-chance flood event is a flood event with a one percent chance of occurring in any given year. Although it is commonly referred to as a “100-year flood event,” the 1-percent-annual chance flood event may occur more than once every 100 years. **If you live in a 100-year floodplain, there is a 26 percent chance that you will be flooded at some point during a 30-year mortgage.**

## WHAT IS A 100-YEAR RAINFALL EVENT?

The 1-percent-annual-chance rainfall event is a rainfall event which has a one percent chance of being equaled or exceeded in any given year. Although it is commonly referred to as a “100-year rainfall event,” a 1-percent-annual-chance event may occur more than once every 100 years. The term is used to explain the 1-in-100 chance that a heavy rainfall event will occur in a given year.

## WHAT IS THE DIFFERENCE BETWEEN A RAINFALL EVENT AND A FLOOD EVENT?

While a 100-year rainfall event can lead to a 100-year flood, a lesser or greater amount of rainfall could as well. The magnitude of a flooding event depends not only on where and how long and strong it rains, but also on topography. The type of soil and how soaked it is, among other factors, can affect how much flooding, if any, a rainfall event may cause.

## DOES A RAINFALL EVENT ALWAYS CAUSE A FLOOD EVENT?

**No.** Several factors can independently influence the cause-and-effect relation between rainfall and high stream flow.



This image depicts the impact of the 50-year flood event on the Fall River in Estes Park that occurred in 2013.